



## Subject card

Subject name and code	Protection Automatics in electric power systems II, PG_00004725						
Field of study	Electrical Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Zbigniew Lubośny					
	Teachers	prof. dr hab. inż. Zbigniew Lubośny dr hab. inż. Jacek Klucznik					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours		Self-study		SUM
	Number of study hours	30	5.0		15.0		50
Subject objectives	The student selects protection systems of the electric power system. Adjusts the protection systems settings. Has the ability to coordinate the protection systems settings.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K7_U02	Knows the theory and practice of system functioning in transient states.			[SU5] Assessment of ability to present the results of task		
	K7_W01	The ability to use mathematical methods to complete a task.			[SW1] Assessment of factual knowledge		
	K7_W02	Ability to select settings for protection automation elements.			[SW3] Assessment of knowledge contained in written work and projects		
	K7_U03	Knowledge of complex protection automation structures.			[SU2] Assessment of ability to analyse information		
Subject contents	HV transmission lines and transformers protection. Differential protection, impedance protection, synchronous generator protection, protection of high-voltage motors.						
Prerequisites and co-requisites	Power system protection I						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Colloquium	60.0%			100.0%		
Recommended reading	Basic literature	1. W. Korniluk, K. W. Woliński: Elektroenergetyczna automatyka zabezpieczeniowa. Wydawnictwo Politechniki Białostockiej, Białystok 2008. 2. W. Winkler, A. Wiszniewski: Automatyka zabezpieczeniowa w systemach elektroenergetycznych, WNT Warszawa 1999. 3. Poradnik inżyniera elektryka, WNT Warszawa 2011 (tom 3)					
	Supplementary literature	1. B. Synal, W. Rojewski, W. Dzierżanowski: Elektroenergetyczna automatyka zabezpieczeniowa. Of. wyd. Politechniki Wrocławskiej, Wrocław 2003. 2. R. Kowalik, M. Januszewski, A. Smolarczyk: Cyfrowa elektroenergetyczna automatyka zabezpieczeniowa. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006. 3. J. Lorenc: Admitacyjne zabezpieczenia zwarciowe, Wydawnictwo Politechniki Poznańskiej, Poznań 2007.					

	eResources addresses	Adresy na platformie eNauczenie: ELEKTROENERGETYCZNA AUTOMATYKA ZABEZPIECZENIOWA II [2023/24] - Moodle ID: 32200 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32200">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32200</a>
Example issues/ example questions/ tasks being completed	Calculate distance rely settings. Calculate settings of overcurrent protection. Calculate settings of admittance protection of MV line.	
Work placement	Not applicable	